



COST ACTION FP1303

Designing with bio-based building materials

Challenges and opportunities

Purpose-designed bio-composite plates for the building sector

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What is DuraPulp?

Producer: Södra, Sweden

Composition: Wood fibers + PLA
various mixtures

Shipping: (pre-blended) bales, sheets

Production: water + temperature +
pressure



What to use for – else?

Packaging, design, ...

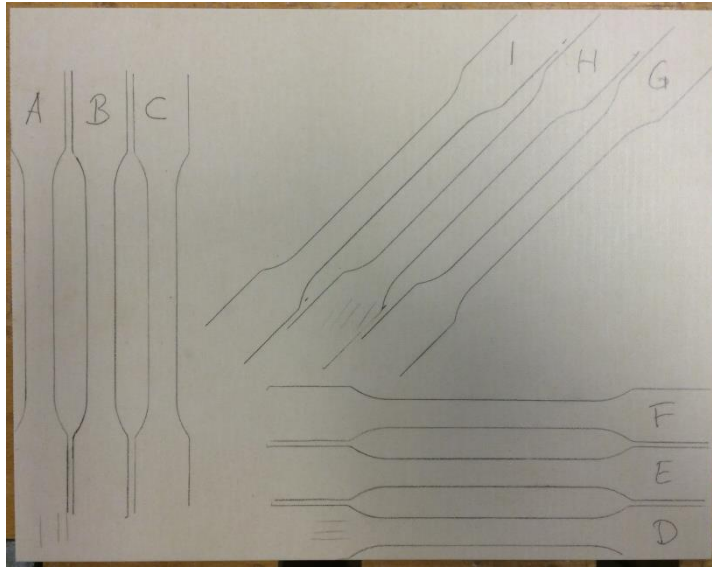
Selling point: bio-degradable
renewable course



Determination of its properties

Tensile properties

- different composition (material ratio)
- different production (wet, dry)
- thickness, fiber orientation



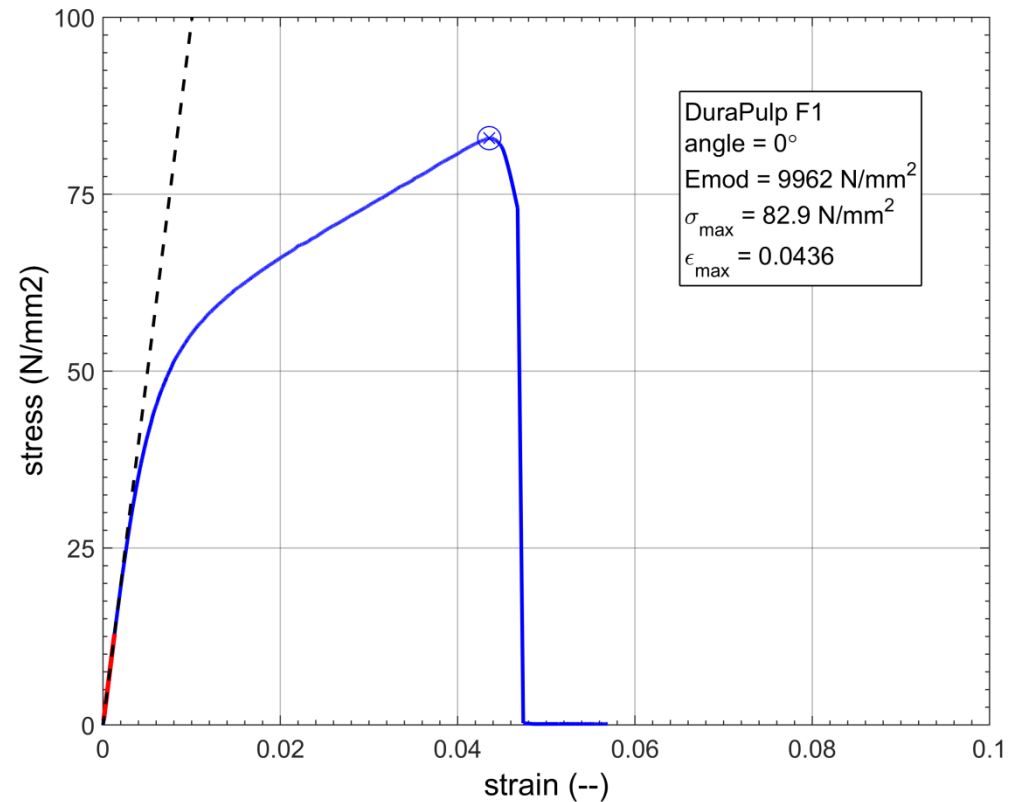
Determination of its properties

Qualitative properties:

- elastic-plastic
- time-dependency (creep)
- failure mode
- temperature sensitivity
- moisture uptake

Quantitative properties:

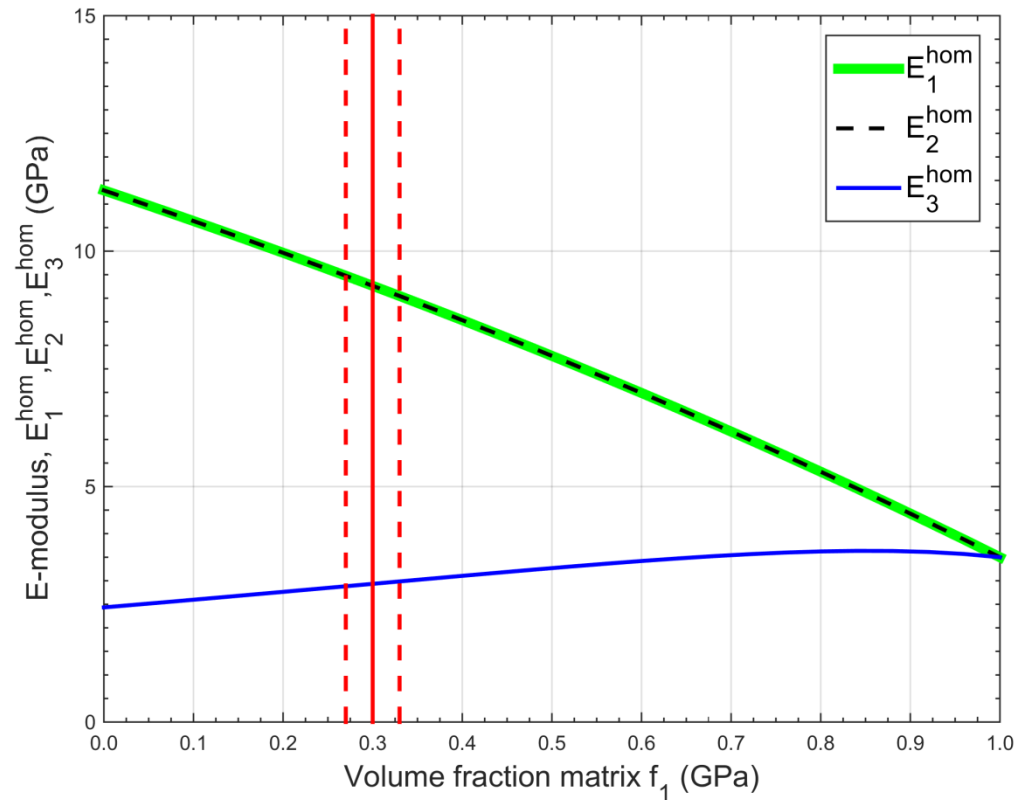
- stiffness
- ultimate strength
- visco-elastic parameters



Micro-mechanics approximation

Estimation of properties

Variation of input parameters



Purpose-defined material

Control characteristics

- mixture of components
- orientation of the fibers

Usage scenarios

- interior cladding (similar to drywall boards)
- reinforcement in structural timber engineering
- added benefits by surface texture (tiles?)
- ...
- ...

What to use for – for real?

Large-scale applications to be sought in the building sector.

Transition to a bio-based society.

What exactly is it to be used for?

- replacement for current products
- new forms of application?